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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,518	PICHLER ET AL.	
	Examiner	Art Unit	
	NATHAN CURS	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-18 and 20-24* is/are rejected.

7)☒ Claim(s) *19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 12-14, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara (US Patent No. 6256125) in view of Graves et al. ("Graves") (US Patent Application Publication No. 2002/0064336).

Regarding claim 12, Uehara discloses a node for an optical communication network (fig. 4 and col. 7 line 59 to col. 8 line 33) comprising: at least one switching unit (fig. 4 element 16); a plurality of optical interfaces to connect to a Wavelength Division Multiplex (WDM) transmission line comprising: a demultiplexer to disassemble an incoming multiplex signal arriving from the WDM transmission line into a plurality of input channels, each input channel being supplied to an input port of the switching unit (fig. 4 element 15); and a multiplexer to assemble a plurality of output channels from a corresponding plurality of output ports of the switching unit into an outgoing multiplex signal (fig. 4 element 18); and at least one receiver to extract an information signal received from the optical communication network (fig. 4, drop channels inherently are connected to some kind of information extracting receiver). Uehara does not disclose an input branching mechanism connected *directly* to at least one receiver, and disposed on

the path of the input channels between each optical interface and the switching unit to selectively supply an input channel alternatively to the switching unit or to the receiver. However, Uehara does disclose a branching mechanism for conveying add/drop signals that is disposed on a path between an optical interface and the switching unit to selectively route channels alternatively between the switching unit, the interface and the add/drop channels (fig. 4 the set of elements 17-*n*). Further, the optical switch of Uehara, while providing the benefit of being able to routing wavelength channels, inherently has some insertion loss applied to each channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the add/drop switching arrangement of Uehara, leaving the existing set of switches in place between the optical switch and demultiplexer, but inserting another set of switches between the demultiplexer and optical switch, in order to avoid the insertion loss of the optical switch for drop channels that are merely being dropped at the same node as the optical switch.

Also, while the add and drop channels of Uehara are inherently connected to respective transmitters and receivers, Uehara does not shown them in fig. 4 and thus does not expressly disclose that they are *directly* connected. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to directly connected the inherent add transmitters and drop receivers to each of the add and drop lines shown in fig. 4, to provide the benefit minimizing insertion losses for the add and drop channels.

Further, Uehara does not specifically disclose that each optical interface unit of the fig. 4 embodiment comprises both a demultiplexer and a multiplexer. However, Graves discloses a related optical switching node, where the unidirectional embodiment is only shown to simplify the drawings and that bidirectional traffic is supported by the switching planes with suitable input and output components (fig. 3 and paragraph 0066). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Uehara fig. 4 to add duplicates of the existing components on either side of the switch but arranged for the opposite direction to complement the existing direction function, to provide the benefit of bidirectional traffic.

Regarding claim 13, the combination of Uehara and Graves discloses the node of claim 12 wherein the demultiplexer includes a plurality of output ports (Uehara: fig. 4 element 15), and wherein the input branching mechanism comprises a switch associated with each demultiplexer output port to selectively connect the demultiplexer output port to one of the input ports of the switching unit or to the receiver (fig. 4 elements 17-*n*, as applicable for the combination, i.e. between elements 15 and 16 as described above).

Regarding claim 14, the combination of Uehara and Graves discloses the node of claim 13 wherein a number of receivers corresponds to the number of input channels, and wherein the input branching mechanism connects each receiver to an associated demultiplexer output port (fig. 4, the receiver of each drop line from each element 17-*n*, as applicable for the combination, i.e. between elements 15 and 16 as described above).

Regarding claim 16, Uehara discloses a node for an optical communication network (fig. 4 and col. 7 line 59 to col. 8 line 33) comprising: at least one switching unit (fig. 4 element 16); a plurality of optical interfaces to connect to a Wavelength Division Multiplex (WDM) transmission line, comprising: a demultiplexer to disassemble a multiplex signal arriving from the WDM transmission line into a plurality of input channels, each input channel being supplied to an input port of the switching unit (fig. 4 element 16); and a multiplexer to assemble a plurality of output channels from a corresponding plurality of output ports of the switching unit into an outgoing multiplex signal (fig. 4 element 18); and at least one transmitter to supply an information signal to the optical communication network (fig. 4, add channels are inherently connect to some kind of information signal transmitter); and an output branching mechanism connected to the at least one transmitter, and disposed on the path of the output channels between each optical interface and the switching unit to selectively supply an output channel alternatively to the interface alternatively from the switching unit or from the transmitter (fig. 4 the set of elements 17-*n*). While the add channels of Uehara are inherently connected to respective transmitters, Uehara does not shown them in fig. 4 and thus does not expressly disclose that they are *directly* connected. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to directly connected the inherent add transmitters to each of the add drop lines shown in fig. 4, to provide the benefit minimizing insertion losses for the add channels.

Further, Uehara does not specifically disclose that each optical interface unit of the fig. 4 embodiment comprises both a demultiplexer and a multiplexer. However,

Graves discloses a related optical switching node, where the unidirectional embodiment is only shown to simplify the drawings and that bidirectional traffic is supported by the switching planes with suitable input and output components (fig. 3 and paragraph 0066). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Uehara fig. 4 to add duplicates of the existing components arranged for the opposite direction to complement the existing direction function, to provide the benefit of bidirectional traffic.

Regarding claim 17, the combination of Uehara and Graves discloses the node of claim 16 wherein the multiplexer includes a plurality of input ports (Uehara: fig. 4 element 18), and wherein the output branching mechanism comprises a switch associated with each multiplexer input port to selectively connect the multiplexer input port to one of the output ports of the switching unit or to the transmitter (fig. 4 elements 17-*n*).

Regarding claim 18, the combination of Uehara and Graves discloses the node of claim 17 wherein a number of transmitters corresponds to the number of output channels, and wherein the output branching mechanism connects each transmitter to an associated multiplexer input port (fig. 4, the transmitter of each add line to each element 17-*n*).

3. Claims 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara (US Patent No. 6256125) in view of Graves (US Patent Application

Publication No. 2002/0064336), as applied to claims 12 and 16 above, and further in view of Strasser July et al. ("Judy") (US Patent No. 5905838).

Regarding claims 15 and 20, the combination of Uehara and Graves discloses the node of claims 12 and 16 respectively but does not disclose that each receiver comprises an optical-electrical converter or that each transmitter comprises an electrical-optical converter. However, Judy disclose that E/O and O/E are needed for WDM add/drop channels to accommodate local distribution of electrical signals (col. 13 lines 9-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use E/O and O/E converters for the add/drop channel transmitters and receivers respectively in the combination, to accommodate local distribution of electrical signals.

4. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara (US Patent No. 6256125) in view of Graves (US Patent Application Publication No. 2002/0064336) and further in view of Strasser et al. ("Strasser") (US Patent No. 2009/0142060).

Regarding claim 21, Uehara discloses a node for an optical communication network (fig. 4 and col. 7 line 59 to col. 8 line 33) comprising: at least one switching unit (fig. 4 element 16); a plurality of optical interfaces to connect to a Wavelength Division Multiplex (WDM) transmission line, comprising: a demultiplexer to disassemble a multiplex signal arriving from the WDM transmission line into a plurality of input channels, each input channel being supplied to an input port of the switching unit (fig. 4

element 16); and a multiplexer to assemble a plurality of output channels from a corresponding plurality of output ports of the switching unit into an outgoing multiplex signal (fig. 4 element 18); a transmitter to supply an information signal to the optical communication network and a receiver to extract an information signal received from the optical communication network (fig. 4, the add and drop channels are inherently connect to some kind of information signal transmitters and receivers); and a branching mechanism disposed between the switching unit and multiplexer to selectively supply an output channel to the interface alternatively from the switching unit or from the transmitter and to selectively supply an input channel to the receiver (fig. 4 the set of elements 17-*n*). Uehara does not disclose an input branching mechanism disposed on the path of the input channels between each optical interface and the switching unit to selectively supply an input channel alternatively to the switching unit or to the receiver. However, Uehara does have a branching mechanism for conveying both add/drop signals that is disposed on a path between an optical interface and the switching unit to selectively route channels (fig. 4 the set of elements 17-*n*). Further, the optical switch of Uehara, while providing the benefit of being able to routing wavelength channels, inherently has some insertion loss applied to each channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the add/drop switching arrangement of Uehara, leaving the existing set of switches in place between the optical switch and demultiplexer, but inserting another set of switches between the demultiplexer and optical switch, in order to avoid the insertion loss of the

optical switch for drop channels that are merely being dropped at the same node as the optical switch.

Uehara discloses groups add and drop channels (fig. 4 elements 17-*n*), but does not disclose a transponder comprising both the transmitter and the receiver for the add and drop channels. Strasser discloses a transponder for an OADM, used between the OADM and the clients, for transmitting optical add signals and receiving optical drop signals and inherent O/E and E/O converters for converting to and from electrical client signals (fig. 2 elements 230 and paragraph 0005). It would have been obvious to one of ordinary skill in the art at the time of the invention to use transponders like those of Strasser for pairs of add/drop channels of Graves, to provide a single client access point for each add/drop channel pair, as disclosed by Strasser.

Also, while the add and drop channels of Uehara, both connected to the same branching mechanism, are also connected to transponders, as described above, Uehara does not shown them in fig. 4 and thus does not suggest that they be *directly* connected. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to directly connected the transponders of the combination to each of the add and drop lines shown in fig. 4, to provide the benefit minimizing insertion losses for the add and drop channels.

Further, Uehara does not specifically disclose that each optical interface unit of the fig. 4 embodiment comprises both a demultiplexer and a multiplexer. However, Graves discloses a related optical switching node, where the unidirectional embodiment is only shown to simplify the drawings and that bidirectional traffic is supported by the

switching planes with suitable input and output components (fig. 3 and paragraph 0066). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Uehara fig. 4 to add duplicates of the existing components on either side of the optical switch but arranged for the opposite direction to complement the existing direction function, to provide the benefit of bidirectional traffic suggested by Graves.

Regarding claim 22, the combination of Uehara, Graves and Strasser discloses the node of claim 21 further wherein each branching mechanism is further operative to supply to the switching unit an input channel from the optical interface or from one of the transponders, and to supply an output channel from the switching unit to an output channel of the optical interface or to one of the transponders (Uehara: fig. 4 elements 17-*n* on both sides of the optical switch as described above for the bidirectional modification describe above).

Regarding claim 23, the combination of Graves and Strasser discloses the node of claim 21 wherein each receiver comprises an optical-electrical converter, and each transmitter comprises an electrical-optical converter (Strasser: fig. 2 elements 230 and paragraph 0005, as applicable in the combination).

Regarding claim 24, the combination of Uehara, Graves and Strasser discloses the node of claim 21 wherein the transponder includes a signal regenerator circuit (Strasser: fig. 2 elements 230 and paragraph 0005, as applicable in the combination, where the conversion to and from electrical, for the client signals, is a type of signal regeneration).

Allowable Subject Matter

5. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 14 March 2011 have been fully considered but they are moot in view of the new grounds of rejection based on Uehara.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN CURS whose telephone number is (571)272-3028. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN M CURS/

Primary Examiner, Art Unit 2613